

M915 - Palletized Loading System Demonstrator

11 June 2003

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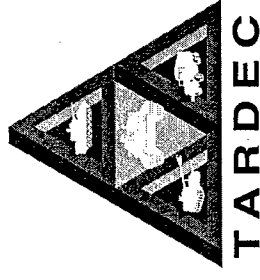
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**Tank-Automotive Research, Development &
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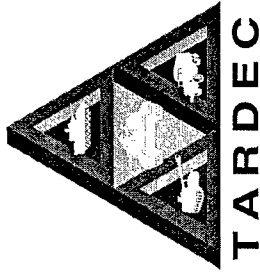
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Outline

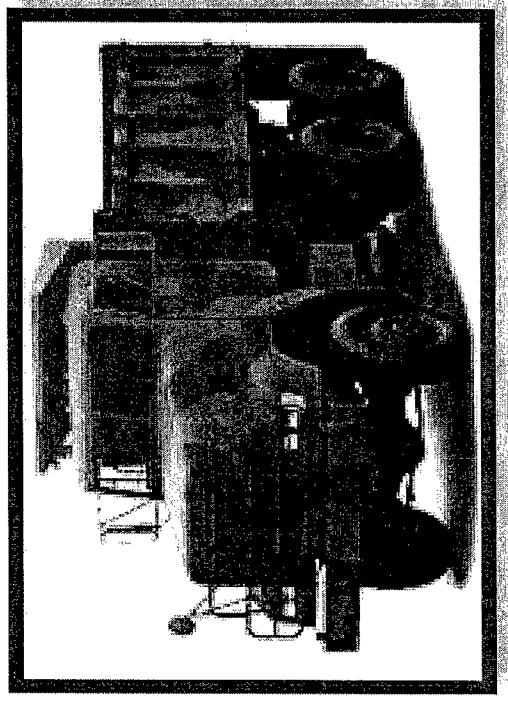


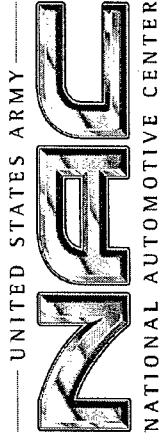
- The 915 Family of Vehicles
- New Technologies
- Permo-Drive RDS
- Questions

The 915 FOV

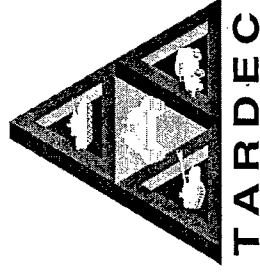


- Why this vehicle?
- 6 mpg Cruising
- 917 Dump Truck
- Stop and Go Drive Cycle



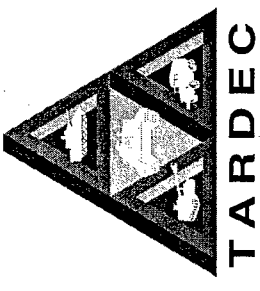


New Technologies

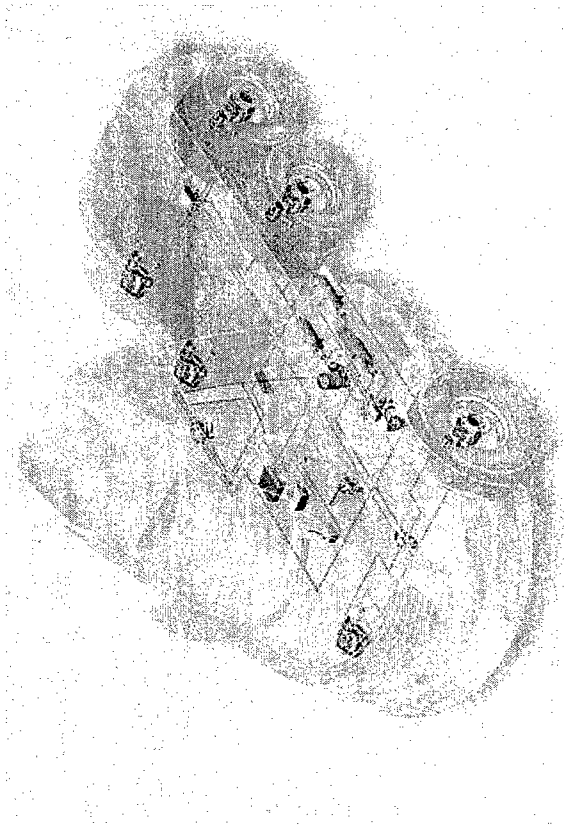


- Electronic Braking System (EBS)
- Air Dryer
- LED Headlights/Taillights
- Steerable Rear Axles
- Exhaust Vibration Balancer

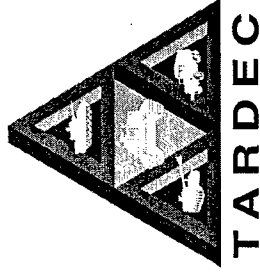
EBS



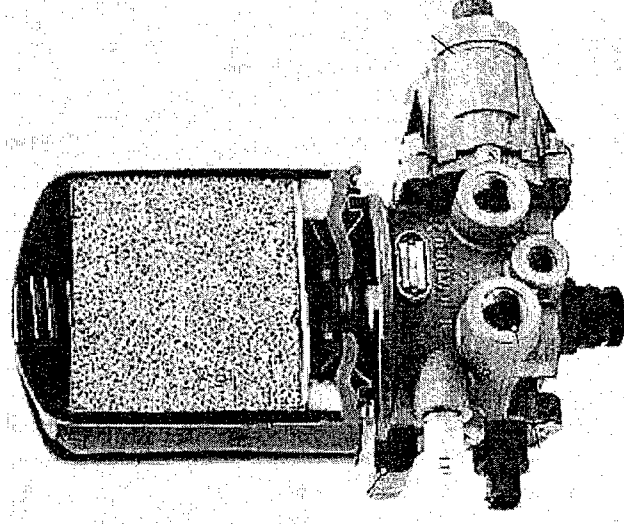
- Uses Electronics to control braking system
- Reduces number of components
- Detects brake wear
- Shortens stopping distance



Air Dryer

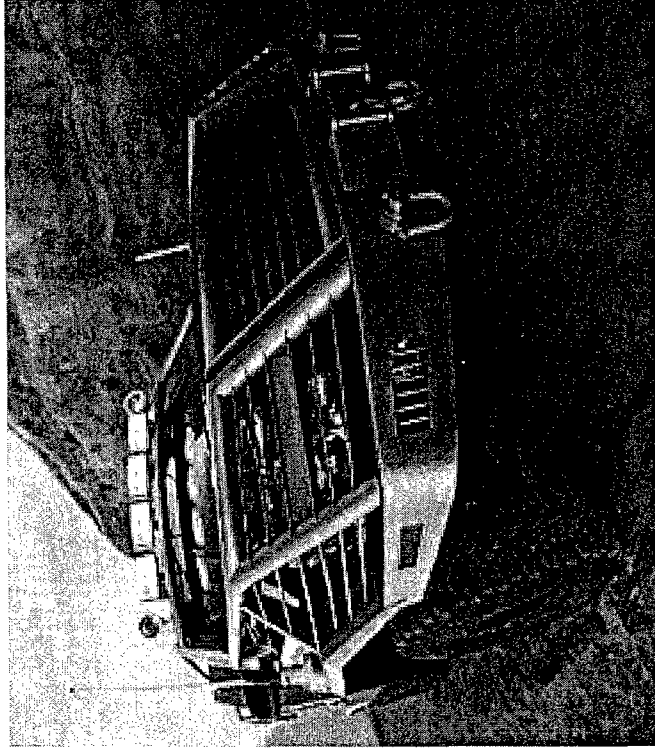


- Protects braking system from moisture and contamination
- 11 Pounds
- Water Absorption
- High reliability

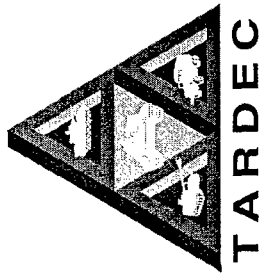


LED

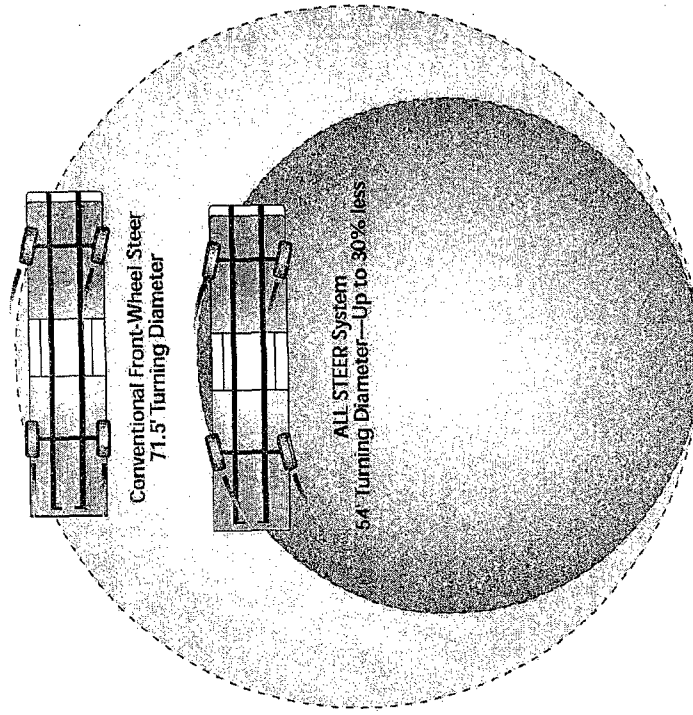
- Low heat, High efficiency
- Vibration sensitivity
- Multi-Color capability
- Covert communication
- Used on ST II



All Steer

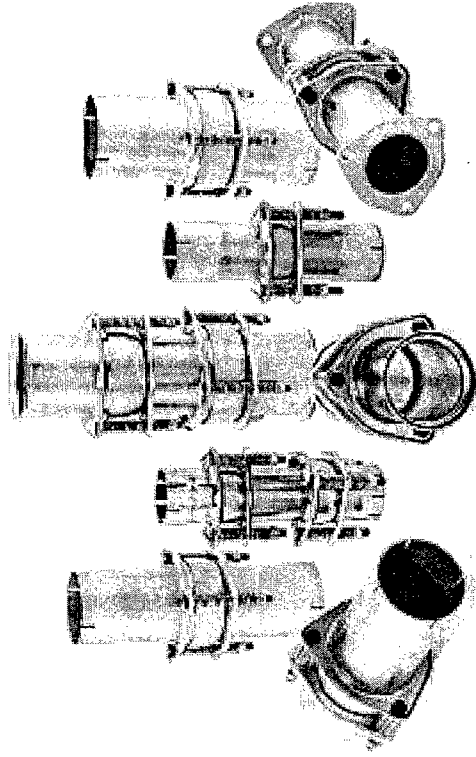


- Improves maneuverability
- Automated, user operated
- Improves turning radius by 30%

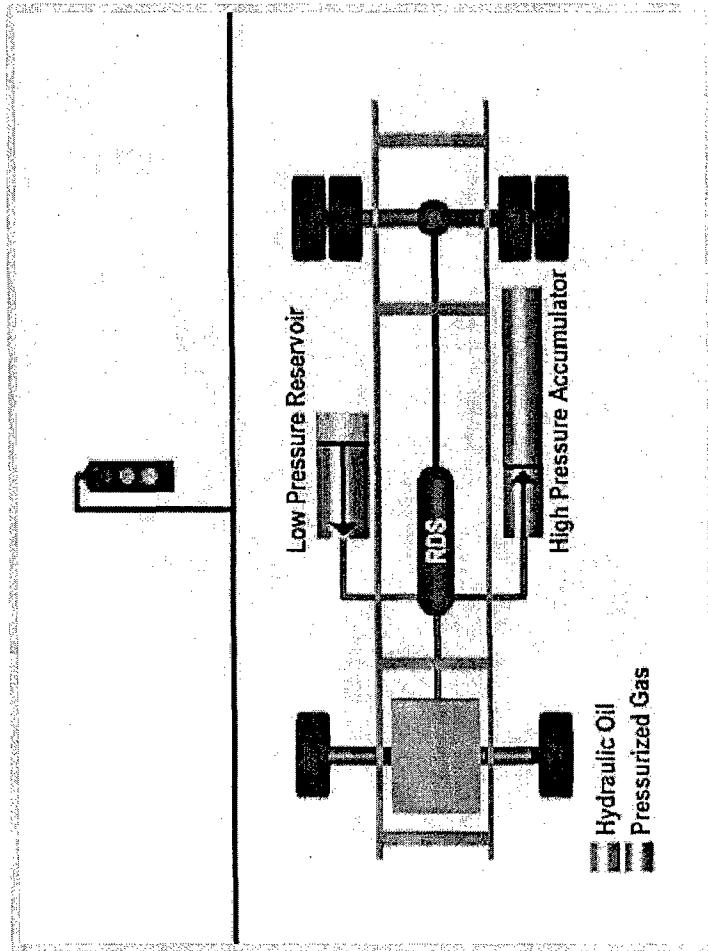


Exhaust Vibration Balancer

- Balances vibration, torque and road shock
- Reduces fuel consumption
- Reduces failure
- Increases durability

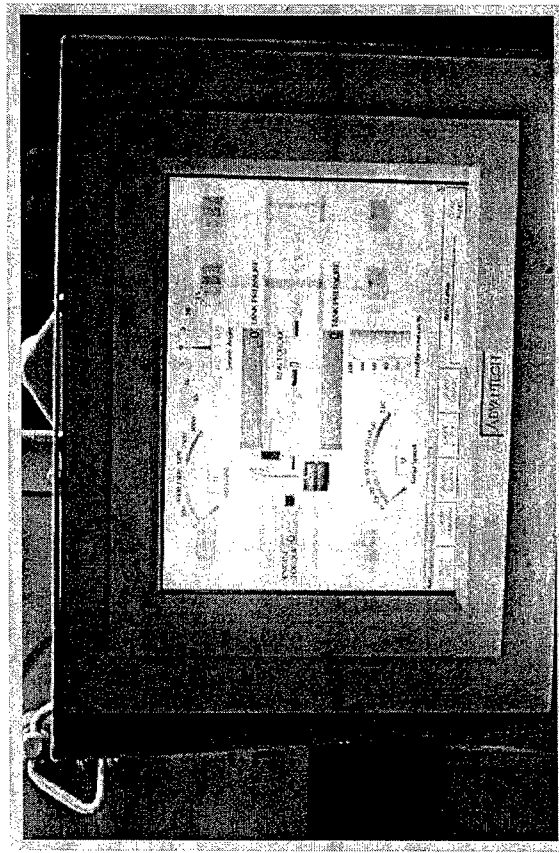


Operation



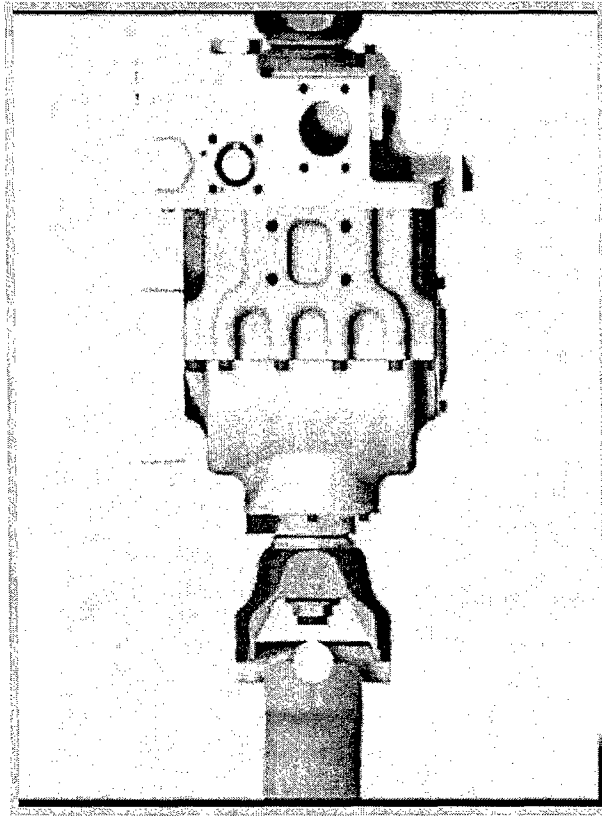
Key Components

- Axial Piston/Pump Regenerative Drive System
- Accumulator(s)
- Oil Reservoir
- Piping/Plumbing
- Electronics and Wiring



Class VI Regenerative Drive System

- Continuous Drive Shaft
- Inline Design
- Operating Pressure 5000psi
- Digitally Controlled
- Retrofittable

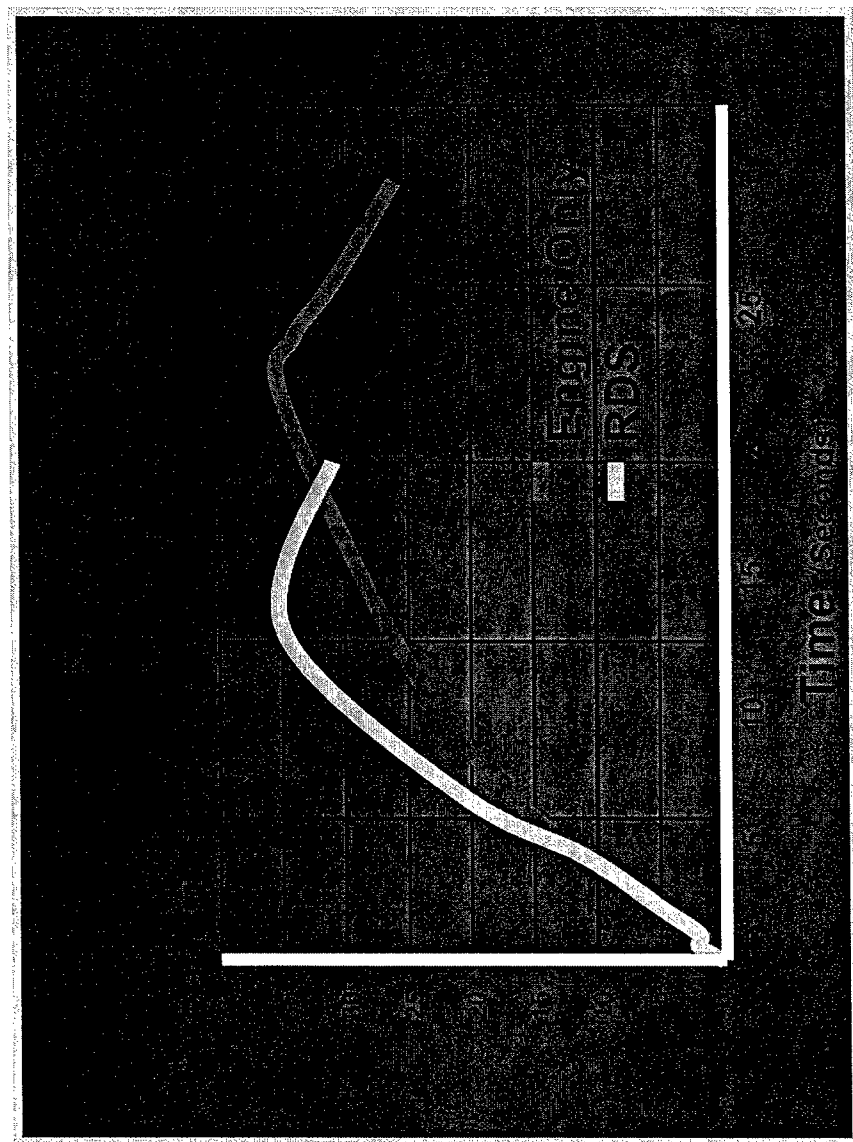


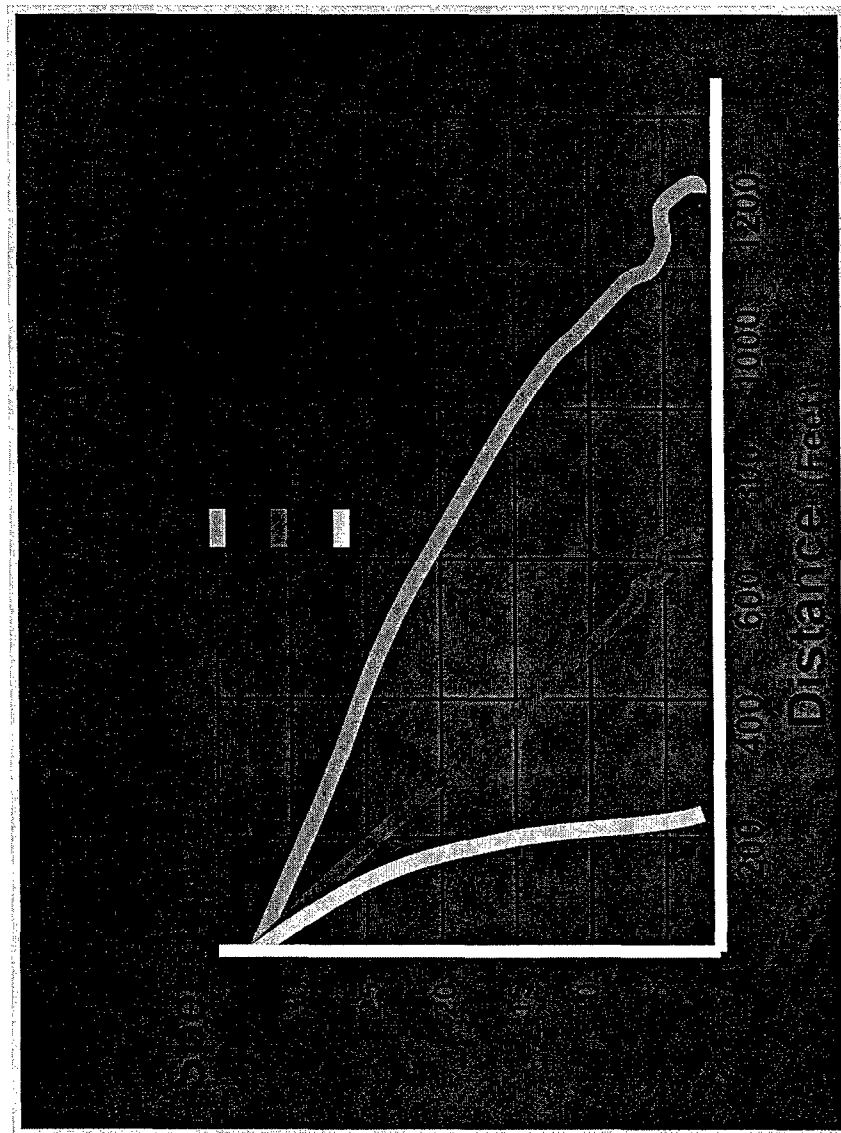
Why Hydraulic?

- **High Power Density**
- **High Energy Flow — Not Temperature or Chemically Limited**
- **Efficient Charging & Discharging**
- **Reliable Performance Over a Wide Range of Operating & Climatic Conditions**
- **Minimal Routine Maintenance**

Why Hydraulic?

- Readily Available Spare Parts
 - Hoses
 - Filters
 - Oil
 - Fittings
- Robust Components
- Mature Technology
- Excellent ROI
- Retrofittable





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Briefing only

OPSEC REVIEW CERTIFICATION

(AR 530-1, Operations Security)

I am aware that there is foreign intelligence interest in open source publications. I have sufficient technical expertise in the subject matter of this paper to make a determination that the net benefit of this public release outweighs any potential damage.

Reviewer: Jeffery S Ernat GS-13 Elec. Eng.
Name Grade Title
[Signature] May 23 2003
Signature Date

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Reviewer's Determination (check one)

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2. Unclassified Limited, Dissemination Restrictions IAW _____

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